

Carbohydrate Recognition

Date(s) Friday 28th September 2012 (09:00-16:30)

Contact Workshop Leader: [John Fossey \(/staff/profiles/chemistry/fossey-john.aspx\)](/staff/profiles/chemistry/fossey-john.aspx)

Download [Add to Calendar \(/research/activity/ias/workshops/2012/carbohydrate-recognition.aspx?ical=true\)](/research/activity/ias/workshops/2012/carbohydrate-recognition.aspx?ical=true)

Saccharides are ubiquitous in nature, they are the building blocks for processes ranging from the production of metabolic energy through to tissue recognition. Despite quantitative analysis and detection of these biomolecules being of paramount importance, reliable and accurate sensors are not widely available.

Boronic acids reversibly bind diols, carbohydrates (saccharides) bear numerous diol units and since the binding of diols to boronic acids can be monitored through a range of property changes from fluorescence through to rheology, boronic acids are the sensor of choice for developing saccharide sensory systems.

Saccharide sensors based on boronic acids have a long history at Birmingham (original patent filed by Tony James 1985 ¹ then of Birmingham, now Bath ² and recently acquired by Glysure via Beckman Coulter). This heritage was reignited upon appointment of John Fossey (from a TSB project at Bath with Glysure and Tony James http://www.glysure.com/sitefiles/upload_docs/ClinicalTrials2012.pdf) and boronic acids in saccharide recognition are currently under active investigation across the colleges of EPS, [MDS \(/university/colleges/mds/index.aspx\)](/university/colleges/mds/index.aspx) and [LES \(/university/colleges/les/index-old.aspx\)](/university/colleges/les/index-old.aspx).

Disease Targets include: Ovarian cancer, colorectal cancer, lung cancer, HIV, Alzheimer's: Facile detection of saccharides and glycoproteins could allow for rapid point of care diagnostics and routine health screening programmes.

Aim of the workshop

To develop a theme centred around molecular sensing and recognition of saccharide and glycoconjugate biomarkers for disease, apply to rapid diagnosis and translate to universal point of care diagnostic and realtime monitoring devices.

Internal attendees

- School of Chemistry: [Jon Preece \(/staff/profiles/chemistry/preece-jon.aspx\)](/staff/profiles/chemistry/preece-jon.aspx), [Liam Cox \(/staff/profiles/chemistry/cox-liam.aspx\)](/staff/profiles/chemistry/cox-liam.aspx), [John Snaith \(/staff/profiles/chemistry/snaith-john.aspx\)](/staff/profiles/chemistry/snaith-john.aspx), [Jim Tucker \(/staff/profiles/chemistry/tucker-james.aspx\)](/staff/profiles/chemistry/tucker-james.aspx)
- Medical School: Mark Drayson
- Chemical Engineering: [Paula Mendes \(/staff/profiles/chemical-engineering/mendes-paula.aspx\)](/staff/profiles/chemical-engineering/mendes-paula.aspx)
- School of Biosciences: [Gurdyaal Besra \(/staff/profiles/biosciences/besra-gurdyaal.aspx\)](/staff/profiles/biosciences/besra-gurdyaal.aspx), [Luke Alderwick \(/staff/profiles/biosciences/alderwick-luke.aspx\)](/staff/profiles/biosciences/alderwick-luke.aspx)
- Cancer Studies: Chris Tselispis
- University Hospital Birmingham Tariq Iqbal

Possible External Partners

- University of Bath, Chemistry: Tony James
- University of Bristol, Physics: Andrei Sarua
- Max Plank Institute for Surfaces and Colloids (Germany): Peter Seeberger
- National Heart, Lung, and Blood Institute, NIH (USA): Joseph Larkin